



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

June 20, 2006

Mr. Mark A. Gilbertson  
Deputy Assistant Secretary  
Department of Energy  
Washington, DC 20585

SUBJECT: RENEWAL OF CERTIFICATE OF COMPLIANCE NO. USA/9200/B(M)F FOR  
MODEL NO. 125-B PACKAGE, REVISION 12 (TAC NO. L23948)

Dear Mr. Gilbertson:

As requested by application dated February 16, 2006, enclosed is Certificate of Compliance No. 9200, Revision No. 12, for the Model No. 125-B package. Changes made to the enclosed certificate are indicated by vertical lines in the margin. The staff's Safety Evaluation Report is also enclosed.

The approval constitutes authority to use the package for shipment of radioactive material and for the package to be shipped in accordance with the provisions of 49 CFR 173.471. Those on the attached list have been registered as users of the package under the general license provisions of 10 CFR 71.17 or 49 CFR 173.471. Registered Users may request by letter to remove their names from the Registered Users List.

If you have any questions regarding this certificate, please contact me or Jill Caverly of my staff at (301) 415-8500.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Nelson", is written over a horizontal line.

Robert A. Nelson, Chief  
Licensing Section  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 71-9200  
TAC No. L23948

Enclosures: 1. Certificate of Compliance  
No. 9200, Rev. No. 12  
2. Safety Evaluation Report  
3. Registered Users

cc w/encls 1&2: R. Boyle, Department of Transportation  
J. Schuler, Department of Energy  
RAMCERTS  
Registered Users

# CERTIFICATE OF COMPLIANCE FOR RADIOACTIVE MATERIAL PACKAGES

1.	a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
	9200	12	71-9200	USA/9200/B(M)F	1 OF	5

## 2. PREAMBLE

- a. This certificate is issued to certify that the package (packaging and contents) described in Item 5 below meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material."
- b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

## 3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

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| <ol style="list-style-type: none"> <li>a. ISSUED TO (<i>Name and Address</i>)<br/>           Department of Energy<br/>           Washington, D.C. 20585</li> </ol> | <ol style="list-style-type: none"> <li>b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION<br/>           Nuclear Packaging, Inc., application dated April 6, 1991<br/>           as supplemented.</li> </ol> |
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## 4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

## 5.

### (a) Packaging

- (1) Model No.: 125-B
- (2) Description

A stainless steel and lead shielded shipping cask. The contents are shipped dewatered. The cask is a right circular cylinder, 65.5-inch outer diameter by 207.5-inch length. The cavity dimensions are 51.25-inch diameter by 192.5-inch length. A 1.0-inch thick stainless steel inner shell, 3.88-inch thick lead annulus and 2.0-inch thick stainless steel outer shell, and 7.50-inch thick welded stainless steel bottom plate make up the cask body. A ten gauge stainless steel thermal shield surrounds the cask outer shell with standoff provided by a wire wrap on a 3.3-inch pitch spacing. The outer lid is 7.50-inch thick stainless steel equipped with a 300 psig rupture disc. The seal is provided by 2 Neoprene O-rings secured by 32, 1-1/2-6 UNC closure bolts. A test port is provided between the O-rings. The lid is also provided with a vent port. Protrusions from the outer cask external cylindrical surface include 2 lifting and 4 tie-down trunnions, 1 shear block for fitting to the shipping skid, and 16 impact limiter attachment lugs (8 at each end of the cask). The impact limiters are 120 inches in diameter by 75 inches long fabricated from 1/4-inch thick stainless steel and filled with closed-cell polyurethane foam. Each impact limiter is secured to the cask by 8, 1-1/4-7 UNC bolts necked down to 1 inch. Plastic pipe plugs are provided in each impact limiter. The overall dimensions of the cask with upper and lower impact limiters are 120-inch outer diameter by 279.5-inch length.

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## 5.(a)(2) Description (continued)

A separate inner vessel (fuel/canister basket) is positioned within the cask cavity. The inner vessel consists of 7, 14.5-inch ID by 0.38-inch wall pipes with a welded bottom plate and top end fixture plate which provides a 151-inch long cavity for the canisters. The pipe assembly is positioned within a 50.25-inch OD by 1.0-inch thick steel shell with a 2.0-inch thick welded bottom plate. The space between the pipes and steel shell contain stainless steel structural members and solid neutron moderator and absorber. The top of each tube is shielded by a 10-inch thick stainless steel plug. The inner lid is 5.0-inch thick stainless steel equipped with 2, 300 psig rupture discs in series. The lid has 2 Neoprene O-rings and is secured to the inner vessel by 24, 3/4-10 UNC closure bolts. A test port is provided between the O-rings. The lid is also provided with a vent port.

A fuel, filter, or knockout canister is positioned within the inner vessel with canister impact limiters and a top 10.0-inch thick stainless steel shield plug. Each canister is 14.0-inch OD by 150.0-inch long by 0.25-inch wall and contains Boral sheets or B<sub>4</sub>C rods. Canister containment is not required with closure provided by welded or bolted plate with 2 or 4 fittings.

The weight of the cask (100,500 pounds), impact limiters (11,700 pounds each), inner vessel (37,000 pounds), canisters (1,046 to 1,440 pounds each), and canister contents (1,500 to 1,894 pounds each) is approximately 181,500 pounds.

## (3) Drawings

- (i) The packaging is constructed in accordance with Nuclear Packaging Inc., Drawing No. X-101-100, Sheets 1 through 7, Rev. T.
- (ii) The canisters are constructed in accordance with Babcock and Wilcox Company Drawing Nos.: 1161299D, Rev. 1; 1161300D, Rev. B1; and 1161301D, Rev. 1.

## (b) Contents

## (1) Type and form of material

- (i) Byproduct and special nuclear material in the form of irradiated fuel particles, partial fuel rods, partial assemblies, and core debris. The maximum pre-irradiation U-235 enrichment must not exceed 2.98 weight percent. The average burnup of the fuel material must not exceed 3,165 MWD/MTU and be cooled for at least 6.0 years.

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## 5.(b)(1) (continued)

- (ii) Irradiated core structural components, contaminated defueling equipment, and filter-aid materials.

Except for close fitting contents, dunnage must be provided in the shipping cask cavity sufficient to prevent significant movement of the contents and secondary containers relative to the outer packaging under accident conditions.

- (iii) Byproduct and special nuclear material in the form of internal contamination inside the inner vessel. Internal contamination shall not exceed the limits for surface contaminated objects as defined in 10 CFR §71.4.

## (2) Maximum quantity of material per package

Seven fuel, knockout, or filter canisters or any combination thereof within the inner vessel. The radioactive decay heat load must not exceed 100 watts in each canister. The gross weight of each canister must not exceed 2,940 pounds.

(c) Criticality Safety Index: 100

6. The cask cavity and inner vessel must be dry when delivered to a carrier for transport, except for free water which may be present following drip drying of the canisters for a minimum of 2 minutes after removal from the storage pool. The canisters must be loaded and dewatered in accordance with Section 7.1.1 of the application which includes approximately 2 atm of argon, nitrogen, or helium cover gas. The cask cavity and inner vessel must be filled with argon, nitrogen, or helium at 1.0 atm pressure.
7. In addition to the requirements of Subpart G of 10 CFR Part 71:
- (a) Prior to each shipment, the inner and outer lid seals must be inspected. The seals must be replaced with new seals if inspection shows any defects or every 12 months, whichever occurs first; and
- (b) Each package must meet the Acceptance Tests and Maintenance Program of Section 8.0 of the application, as supplemented.
- (c) The package must be prepared for shipment and operated in accordance with Section 7.0 of the application.
8. For any canister containing water and/or organic substances which could radiolytically generate combustible gases, a determination must be made by tests and measurements or by analysis of a representative canister that the following criteria are met over a period of time that is twice the expected shipment time:

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## 8. (continued)

The hydrogen generated must be limited to a molar quantity that would be no more than 5% by volume (or equivalent limits for other inflammable gases) of the canister gas void if present at STP (i.e., no more than 0.063 g-moles/ft<sup>3</sup> at 14.7 psia and 70°F); or that oxygen is limited to 5% by volume in those portions of the canister which could have hydrogen greater than 5%.

For any package delivered to a carrier for transport, the canister must be prepared for shipment in the same manner in which determination for gas generation is made. Shipment period begins when the canister is closed and must be completed within twice the expected shipment time.

## 9. Bolt torque:

The outer cask lid must be secured by 32, ASTM A320, Grade L43 (Cadmium plated), 1-1/2-6 UNC-2A x 5.5 long bolts torqued to 780-945 ft-lbs (lubricated).

The inner vessel lid must be secured by 24, ASTM A320, Grade L43 (Cadmium plated), 3/4-10 UNC-2A x 2.25 long bolts torqued to 130-158 ft-lbs (lubricated).

The upper and lower overpack limiters must each be secured by 8, ASTM A320, Grade L43 (Cadmium plated), 1-1/4-7 UNC-2A x 41.75 long bolts torqued to 225-270 ft-lbs (lubricated).

10. Except for the contents specified in 5.(b)(1)(iii), prior to each shipment, the shipper must confirm that the cask and inner vessel are properly sealed by tests as specified in Appendix 7.4 or Section 8.2.2 of the application. The test is satisfied if no leakage is detected using a test with a minimum sensitivity of  $1 \times 10^{-3}$  atm-cm<sup>3</sup>/s.
11. The neoprene O-ring seals used in the containment vessel closure must be fabricated from neoprene material specified as Cascade Gaskets compound number CG 100-111-60.
12. The shipper may use a tarpaulin to cover the cask during time of transport.
13. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.
14. Revision No. 11 of this certificate may be used until June 30, 2007
15. Expiration date: June 30, 2011.

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REFERENCES

Nuclear Packaging, Inc. application dated April 6, 1991.

Supplements dated: April 9 and 15, 1991.

Department of Energy supplements dated: February 21, 1996; February 1, 2001; October 14, 2003; March 3, 2004 and February 16, 2006.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION



Robert A. Nelson, Chief  
Licensing Section  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

Date June 20, 2006



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NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

**SAFETY EVALUATION REPORT**

Docket No. 71-9200  
Model No. 125-B Package  
Certificate of Compliance No. 9200  
Revision No. 12

**SUMMARY**

By application dated February 16, 2006, the U.S. Department of Energy (DOE) requested renewal of Certificate of Compliance (CoC) No. 9200 for the Model No. 125-B package. DOE did not request any changes to the package design or authorized contents. The certificate has been renewed for a five-year term.

**EVALUATION**

By application dated February 16, 2006, DOE requested renewal of Certificate of Compliance No. 9200. The staff reviewed the documents referenced in the certificate and determined that the documentation was available and complete. The staff also reviewed the operating and maintenance procedures for any impacts due to the proposed changes and determined that there are no effects from the proposed modifications. The Certificate of Compliance No. 9200 has been renewed for a five-year term.

The following changes have been made to the Certificate of Compliance:

- Condition No. 6(c) was revised to add the term Criticality Safety Index due to the new Part 71 ruling effective October 1, 2004 (69 FR 3698).
- Condition No. 13 was revised to reflect the new numbering of Part 71.
- Condition No. 14 was added authorizing the use of the previous revision of the certificate for a period of approximately one year.
- Condition No. 15 was updated for the new expiration date of June 30, 2011.

**CONCLUSION**

The certificate has been renewed for a five-year term that expires on June 30, 2011. This change does not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued with Certificate of Compliance No. 9200, Revision No. 12  
on 6/20/06.

## REGISTERED USERS

GPU Nuclear Inc.  
Attn: Mr. Jim Byrne  
TMI Nuclear Generating Station 2  
Route 441 South,  
P.O. Box 480  
Middleton, PA 17057-0480

U.S. Department of Energy  
Attn: James M. Shuler  
EM-24/CLV-1081  
1000 Independence Ave., S.W.  
Washington, DC 20585-2040